

SL-1 NC-77/1

Time: 09:00 CDT, 04:20:30 CDT
5/19/73

PAO

Skylab Mission Control on the hour. At the present time the orbital parameters are as follows: 25,116.3 feet per second is the velocity of the Skylab workshop. It's height is approximately 270 statute miles with a maximum height of 238.0 nautical miles, and a minimum height of 235.5 nautical miles. The period of revolution is 1 hour 33 minutes and 22.1 seconds. The program of venting and repressurization begun yesterday afternoon to remove possible toxic gases from the atmosphere, has been temporarily interrupted. These gases may have been released by overheated materials on the front side of the workshop. Venting was terminated earlier this morning at a pressure of 2.3 pounds per square inch, approximately half the normal pressure of the workshop. The venting was terminated because of momentum buildup and lack of accurate data from tracking stations to determine whether or not momentum was going on. Venting is expected to begin again when momentum studies are completed. Change of shift briefings continue here in the Mission Control. Neal Hutchinson's team receiving briefing from the offgoing team of flight controllers and Charles Lewis. There will be a press conference including a medical specialist to discuss the problem of out-gassing in the workshop. This press conference will be held no earlier than 9:30 a.m. Central Daylight Time. Also in attendance at the press conference will be Flight Director Charles Lewis. This is Skylab Mission Control at 1 minute and 59 seconds after the hour.

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Time: 11:00 CDT 04:22:30 GET

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PAO This is Skylab Mission Control, at 5 seconds after the hour. At the present time the spacecraft is beginning its seventy-second revolution, traveling approximately 275 miles above the Earth with a low point at 271 statute miles above the Earth. In nautical miles, that's 238.8 nautical miles at it's high point and 235.5 nautical miles at its low point. The speed of the spacecraft is 25,090.8 feet per second or approximately 17,100 miles per hour. Its present period of revolution is 1 hour 33 minutes 10.2 seconds. America's first space station will complete 5 days in orbit in approximately 1-1/2 hours. At this time it is traveling along the same path it followed during the first revolution following launch, beginning a repeat of a pattern that occurs after every 71 revolutions. Approximately once every 5 days. The spacecraft is traveling now in a descending mode, over the eastern end of the Mediterranean Sea on revolution 72. A new stowage list of items to be stored aboard the command module after midnight next Thursday includes four special gas analysis tubes for measuring carbon monoxide, and six tubes for measuring TDI, a gas that could cause respiratory irritation in large quantities. The TDI gas which may exist in parts in quantities as large as two parts per million, is believed to have outgassed from insulation carried in the spacecraft. No certainty at this time can be determined in relation to this gas, but there are tests being made presently at the space center to determine what danger might occur from that. There will be six small tubes for measuring the gas concentration after the crew enters the workshop. This is Skylab Mission Control at 2 minutes and 8 seconds after the hour.

END OF TAPE

SL-1 MC-79/1

Time: 12:02 CDT, 04:23:31 GMT

5/19/73

PAO This is Mission Control at 1 minute and 40 - This is Skylab Mission Control at 1 minute and 52 seconds after the hour. At the present time the spacecraft is traveling in the South Pacific on an ascending mode of revolution number 72, traveling toward Baja, California. Flight Director Neal Hutchinson indicates the flight planners will begin venting the orbital workshop again as soon as they come into range of the United States series of tracking stations. Beginning at approximately 12:06 Central daylight time, venting will proceed toward the presently set goal of 0.6 pounds per square inch of pressure in the orbital workshop. During the pass over the United States, careful watch will be kept on changes of attitude caused by releasing internal atmosphere from the spacecraft. During earlier venting it was necessary to halt the venting because of gases forcing a slight change in the yaw of the spacecraft. At that time there were insufficient tracking stations available to give data and this new venting will test whether or not that yaw is a problem. It is believed at the present time that they will be able to vent through to the 0.6 pound per square inch level with no difficulty. In any case they may interrupt this process without expending additional TACS gas, that's gas used in the thruster attitude control system, at anytime over the United States. They have acquisition of signal and just a little over 3 minutes in the United States. The venting is being performed to remove any undesirable odors or gases that may have come from overheated materials in the workshop. Flight controllers have no sensors to determine whether any undesirable gases may be present aboard the workshop. For this reason as a safety measure they are releasing all of the atmosphere with the exception of a small quantity into the area around the workshop. Before the workshop will be regularly inhabited, test will be made by the astronauts using small tubes that register gas concentrations. These tubes will be carried aboard the command module. We have acquisition of signal in 2 minutes and 18 seconds. This is Skylab Mission Control at 4 minutes and 20 seconds after the hour.

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SL-1 MC-80/1

Time: 12:40 p.m. CDT, 05:00:11 GET
5/19/73

PAO

This is Skylab Mission Control at 41 minutes and 3 seconds after the hour. The spacecraft at this time has lost signal over Madrid, and is now traveling south over the African Continent. We will not have acquisition of signal again for the next 32 minutes and 35 seconds, at which time we will pick up the signal at Carnarvon in Australia. At the present time they are continuing to vent the spacecraft. Venting began during the last United States pass. Orbital workshop pressures are dropping at approximately the rate of 0.3 of a pound per square inch each hour. That's 0.3 of a pound per square inch each hour. Guidance and Navigation reports that stable results are being received from data over the United States and over the Madrid tracking station. There will be no more data received until they reach the Australian tracking station in something over one half hour from now. Venting is expecting to continue until a level of 0.6 pounds per square inch is obtained in the spacecraft. At the present time they are receiving readings of approximately 1.9 to 2.3 on the various sensors located in the orbital workshop. This is Skylab Mission Control at 42 minutes and 30 seconds after the hour.

END OF TAPE

SL-1 NC-81/1

Time: 13:00 CDT, 05:00:30 GMT
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PAO This is Skylab Mission Control on the hour. The spacecraft at the present time is nearing the end of the descending mode on its 73 revolution. It's traveling over the Indian Ocean, headed toward the Carnarvon tracking station in Australia. We have acquisition of signal at Carnarvon at approximately 13-1/2 minutes. The spacecraft continues to vent gases into the atmosphere as part of the procedure of cleaning out the interior. As far as we know, there has been no changes in the attitude. We have had no tracking since the Madrid station sometime ago. There is a period of more than a half an hour of loss of signal and during that time no data is received. As soon as we get to Carnarvon we will get readings again from the spacecraft. At the present time the orbit of the spacecraft has a high point at 238.1 nautical miles, and a low point at 235.3 nautical miles above the surface of the Earth. Its velocity is 25,091.4 feet per second as of the last tracking station. This is Skylab Mission Control at 1 minute and 14 seconds after the hour.

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SL-1 MC-82/1

Time: 2:00 p.m. CDT, 9:01:30 GET

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PAO This is Skylab Mission Control at 1 second after the hour. At the present time the spacecraft is beginning its 74 revolution passing off the coast of the Newfoundland area and North Atlantic and beginning a descending node. At the present time it is traveling at 25,090.3 feet per second. At the high point in its orbit, it reaches 238.8 nautical miles. At the low point in its orbit, 235.5 nautical miles. Atmospheric pressure aboard the orbital workshop has now dropped to approximately 1.9 pounds per square inch as venting continues. The regular momentum peak reached every revolution as the spacecraft circles the Earth was lower and well within limits during the stateside pass just completed. This indicates that the vents are no longer causing any problem with attitude. The atmosphere within the workshop is being purged, reducing the pressure to about 0.6 pounds per square inch, at a rate of approximately 0.3 pounds per square inch. This venting through two nonpropulsive vents, located on opposite sides of the aft skirt of the orbital workshop perpendicular to the orbital workshop solar array wings, appeared to affect attitude during venting last night. A slight yaw for flight controllers to suspend venting. Everything is now operating beautifully with temperatures balanced in the orbital workshop, and venting continues as planned. This is Skylab Mission Control at 1 minute and 47 seconds after the hour.

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SL-1 MC-83/1

Time: 3:02 p.m. CDT, 03:02:32 CET

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PAO This is Skylab Mission Control at 2 minutes and 2 seconds after the hour. The spacecraft is beginning its - half way through its 74th revolution, as it's passing towards the northeast on an ascending node, just having left the Honeysuckle station in Australia. It's passing over the South Pacific towards the Hawaiian tracking station. There will be acquisition of signal at Hawaii in approximately 6 minutes and 50 seconds. Flight controllers have observed a slight decline in the rate of venting from the Skylab orbital workshop. A chart, based on readings over the past 3 hours, indicates that atmospheric pressure in the workshop is now approximately 1.7 pounds per square inch, or 1/3 the fully pressurized level. At this new rate of venting, an estimated 4 hours will be required in addition to that time originally set aside to reduce the pressure to the presently selected level of 0.6 pounds per square inch. This variation, observed in the past revolution, is still under study. It is not expected, however, to present any difficulties other than a modest extension of the time period required for pumping out the atmosphere in the space station. The venting of the atmosphere is being performed to eliminate any undesirable odors or gases that may have accumulated as a result of excessive temperatures affecting materials in the workshop. No sensors are available aboard the workshop for determining what odors or gases may exist in the interior. The crew will carry color-coated tubes to indicate gas contents in the OWS. These will be carried aboard the command module, to be loaded aboard next Thursday morning, immediately after midnight, and they will deploy these inside the workshop once they have entered it. This is Skylab Mission Control at 3 minutes and - I'm sorry, at 4 minutes and 2 seconds after the hour.

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SL-1 MC-84/1

Time: 4:05 p.m. CDT, 05:03:35 GET

9/19/73

PAO This is Skylab Mission Control at 6 minutes and 2 seconds after the hour. Skylab workshop is now in the beginning of its 75th revolution just off the Cape of Good Hope in Africa beginning it's - nearly at the end of its descending node. At the present time the spacecraft is traveling 25,091.7 feet per second. At the high point it reaches 238.1 nautical miles. And it's low point 235.3 nautical miles. During the past hour and 1/2 the only difficulty to have arisen here in Mission Control is due to a possible glitch in the hardware for a coolant loop. Flight controllers have begun working over computer data tapes in an attempt to discover why an automatic switchover shifted the orbital workshops refrigeration system to a backup coolant loop at sometime between loss of signal at Honeysuckle and acquisition of signal at Hawaii, between 2:54 and 3:10 p.m. central daylight time. Two complete cooling systems are provided in the orbital workshop to keep food freezers below zero degrees Fahrenheit, chilled drinking water, to provide storage for urine samples, to cool electronic instrument parts when they are in operation, and to operate the heat exchangers for air conditioning. These cooling systems, one primary cooling loop and a backup or secondary loop, are part of a subsystem, separate from cooling, provided to the Apollo telescope mount. Data from earlier test sites has just arrived at Mission Control for analysis. Flight Controller, Neil Hutchinson informs us that the problem is not considered serious at this time. A total of three identical pumps are provided in each cooling loop. In the event that a single pump has failed, either of the two remaining pumps is fully capable of handling the necessary load. Even should all three pumps fail in one line there remains an additional secondary line to take over the job. It is suspected, however, that the automatic switch itself may have operated on a spurious signal. Analysis will permit a correction to be made in this onboard computer system should this be the cause. This is Skylab Mission Control at 8 minutes and 35 seconds after the hour.

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SL-1 NC-85/1

Time: 5:00 p.m. CDT, 05:04:30 GET

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PAO This Skylab Mission Control at 2 seconds after the hour. The Skylab space station is presently just entering the United States tracking areas. It will have acquisition of signal at Goldstone in approximately 30 seconds. This is a Skylab status report. The mission of Skylab 1 continues in a stabilized manner, with temperatures and systems behaving normally. Detailed mission reports will continue to be issued from Johnson Space Center. Preparations for the launch of Skylab 2 continue at Kennedy Space Center for a launch at 9 a.m. eastern daylight time on Friday, May 25, 1973. Effort continues on the development of alternative thermal shields to provide solar protection for the workshop. Progress has been made in the conceptual designs of a thermal shield, deployable through the solar airlock in the workshop. Three concepts are now being pursued. An inflatable shield was tested successfully at Marshall Spaceflight Center in an 1-g environment yesterday. This device is nitrogen inflated, and would be deployed about 20 inches from the airlock. It is a 20 by 24 foot device, which when inflated, is much like a life raft, with pressurized booms at the extremes, and thermal materials stretched between. At Johnson Space Center, two umbrella-type devices are under test. One of which employs telescoping rods and the other uses spring actuated unfolding rods. All three devices can be deployed from a position internal to the workshop and do not require extravehicular activity. All three thermal shields use the T027 canister for deployment through the scientific airlock. Two extravehicular activity techniques, one deploying a sail from the Apollo telescope mount, and a sail from the CSM, are proceeding on schedule, with hardware being delivered as planned. The crew conducted hardware familiarization and pre- and post-EVA stowage exercises at the Johnson Space Center. These activities will prepare the crew for the neutral buoyancy simulator at Marshall Space Flight Center where they will be in training probably Monday and Tuesday, May 21 and 22. Mission timeline and procedures for the first four days of the mission are being developed now. An evaluation of experiment operations is continuing. Results to date have indicated most of the experiments scheduled for Skylab 2 can be conducted if the crew is successful in deploying the thermal shield. The level of experiment activity will largely be determined by power generation and power usage. The present estimates indicate that with command module fuel cells operative, there should be approximately 1000 watts of power available for experiments. This level of power would provide for a daily Apollo telescope mount and medical experiment operations and permit, in addition, some Earth resources and corollary experiment activity. At 7:30 this evening an example

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of deployment of the thermal shield, to be used in a standup EVA, will be made at hangar 135 at Ellington Air Force Base. That's at 7:30 this evening, hangar 135, Ellington Air Force Base, a deployment of a thermal shield, like a thermal sail. This thermal sail will be flown to Marshall Space Flight Center tomorrow morning, and is expected to be tested in a neutral buoyancy simulator either late Sunday or early Monday. Due to an unacceptable data dump at Bermuda, no analysis has yet been possible of the coolant loop switchover reported an hour ago. Data telemetered to Honeysuckle is now being received and evaluated at the Mission Control Center in Houston. No further difficulty has appeared in the coolant system, which has several backup pumps and a dual system to take the place of the primary. This is Skylab Mission Control, the final report of the day, at 4:05 after the hour.

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